



DREDGED MATERIAL RESEARCH PROGRAM



TECHNICAL REPORT D-76-6

FEASIBILITY STUDY FOR DYKE MARSH DEMONSTRATION AREA POTOMAC RIVER, VIRGINIA

by

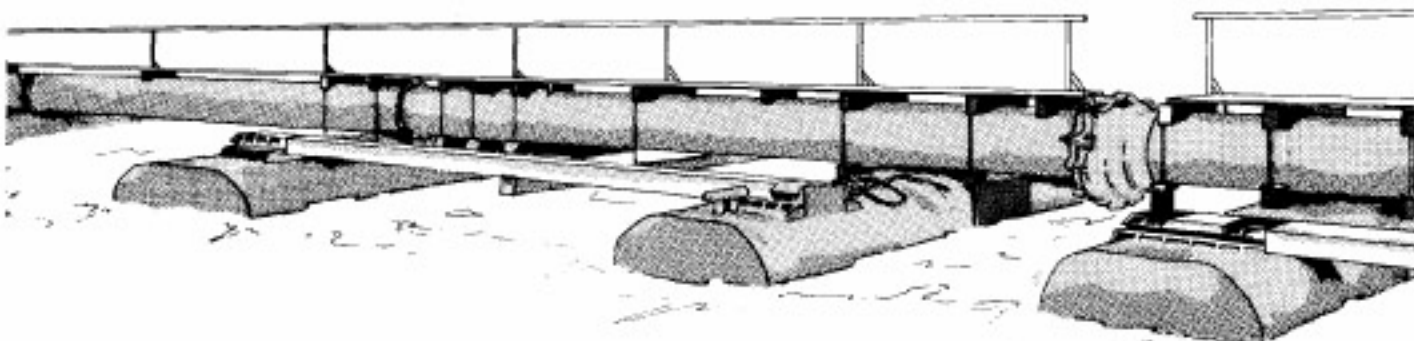
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November 1976

Final Report

Approved For Public Release; Distribution Unlimited



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Washington, D. C. 20314

Under DMRP Work Unit 4A17

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IN REPLY REFER TO: WESYV

12 November 1976

SUBJECT: Transmittal of Technical Report D-76-6

TO: All Report Recipients

1. The technical report transmitted herewith represents the results of a study to determine the engineering feasibility of developing and restoring a marsh community at Dyke Marsh using dredged material from the Potomac River estuary. This work unit (4A17) was conducted as a part of Task 4A (Marsh Development) of the Corps of Engineers' Dredged Material Research Program (DMRP). Task 4A is a part of the Habitat Development Project (HDP) of the DMRP and is concerned with the development, testing, and evaluation of the environmental, economic, and engineering feasibility of using dredged material as a substrate for marsh development.
2. Work Unit 4A17 and several other related work units deal with operational aspects of marsh development such as retaining and protective structures and guidelines for material placement for marsh creation. Other DMRP marsh-development field studies that involve the containment of fine-textured material include sites at Windmill Point, Virginia; Apalachicola Bay, Florida; and San Francisco, California.
3. Dyke Marsh, located along the Potomac River in Fairfax County, Virginia, is a vestige of a formerly large wetland area. The site is now a unit of the George Washington Memorial Parkway and is administered by the National Capital Parks, National Parks Service, for the preservation of wetland habitat. Approximately half of the original marsh was destroyed by sand and gravel mining prior to Federal ownership. The feasibility study, conducted by the DMRP with the support and cooperation of the Baltimore District, Corps of Engineers, the National Park Service, and the U. S. Fish and Wildlife Service, evaluates the potential for the restoration of marshland on an 11-hectare portion previously mined.
4. The feasibility study identifies the economic and technical constraints associated with dike construction and dredged material placement for marsh restoration at Dyke Marsh. Site specificity, preliminary containment design, availability of construction materials, identification of construction alternatives, and procedures for dredged material placement are evaluated. The Dyke Marsh study greatly contributes to the identification of the engineering constraints associated with a major marsh development site and provides basic design guidance that should be applicable to many estuarine areas.

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5. The restoration of Dyke Marsh using dredged material appears technically feasible, and a detailed engineering design is currently under preparation. Construction of the project will depend on economic constraints, the findings of the environmental assessment, and the public acceptance of the design concept.



JOHN L. CANNON

Colonel, Corps of Engineers
Commander and Director

Unclassified

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Results of an investigation conducted to determine the engineering feasibility of using dredged material to expand an existing marshland area are presented. Dredged material obtained from maintenance dredging operations was found suitable for use as marsh substrate and site conditions were found adequate for construction of a containment facility.		

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Factors evaluated in the study include site-specific feasibility of marsh expansion using dredged material, sizing of the demonstration area to meet water-quality and storage needs, preliminary design of the containment facility, procedures for placement of dredged material, and identification of alternative construction methods, materials, and costs.

Overall feasibility of marsh expansion was demonstrated and additional investigations were recommended for the project.

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